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THE GENERIC NAME OF THE GREAT WHITE SHARK,

Squalus carcharias L.

THE Great White Shark or "Man Eater," *Squalus carcharias L.*, is widely distributed over the globe, and occasionally taken in the Mediterranean. It is strongly characterized by its large triangular serrated teeth. As some of the early writers mistook it for a large shark with serrated teeth which are not triangular, much confusion has occurred in synonymy. The earliest name for this last named form seems to be *Squalus commersonii* Blainville.

The names, *Carcharias* Rafinesque (1810), *Carcharhinus* Blainville (1816), *Carcharias* Cuvier (1817), and *Carcharodon* Smith (1838) were successively intended for *Squalus carcharias*, but in the first two cases complications arose through the addition of species which do not correspond to the original definition and are, in fact, not congeneric with *Squalus carcharias*.

In his Caratteri di Alcuni Nuovi Generie Specie (April 1, 1810, p. 10), a memoir devoted only to new species and genera, Rafinesque indicates a new genus, *Carcharias*, correctly but not closely defined, and

containing "the most enormous and voracious" of sharks ("le piú enormi e le piú voraci"), adding one new species (*Carcharias taurus*), which does not agree with his generic diagnosis.

It is evident from the phrase "enormi e voraci" and from the name *Carcharias*, that he had in mind *Squalus carcharias* as type of *Carcharias*. In his "Indice d'Ittiologia Siciliana" published May 15, 1910, he gives a catalogue of the fishes of Sicily. In this list appears *Carcharias lamia* as a new name for *Squalus carcharias L.* All this shows plainly Rafinesque's intention to rest his genus *Carcharias* on the Great White Shark.

Next comes *Carcharhinus* Blainville (Prodrome, etc.). The diagnosis of the genus (*Dentibus magnis triangularibus... serratis*) leaves no doubt that he had *Squalus carcharias* in mind as type. This is shown also by the name itself, Blainville's name ending in *shinus*, shark, as an affix to some modified specific name (as *galeus—Galeorhinus; acanthias—Acanthorhinus*). But Blainville includes in his list of species which begins with *commersonii* and *lamia*, several others, some of them including *commersonii*, being *nomen nudum*, and but two (*lamia* and *verus*) being congeneric with *Squalus carcharias*.

In his Faune Francaise, published about 1820, *Carcharhinus* appears again, with some additional species, with "dentes grandes triangulaires, le plus souvent denticulées sur les bords." His first two species (*lamia* and *carcharias*) with descriptions copied from other authors, both refer to *Squalus carcharias*. In connection with *Squalus* (*Carcharhinus*) *carcharias*, he adds this note: "M. de Lacepède figure sous ce nom (t. 1. p. 169, pl. 5, fig. 1) une espèce distincte auquel j'ai donne le nom de *Commerson*." This is the first explanation of the nomen nudum, *Commersonii* of 1816.

The species is in fact, as he seems to indicate, not congeneric with *Squalus carcharias* or his *Carcharhinus*. The remaining species mentioned by Blainville belong to other genera, and have not triangular teeth.

It is evident therefore that Blainville's *Carcharhinus* was based on *Squalus carcharias*, but recent writers have taken *commersonii* as type, a species of the genus *Eulamia* of Gill, and which Gill called "*Eulamia lamia* Gill."

Next follows *Carcharias* of Cuvier in the first edition of the Regne Animal (1817). Here the teeth are said to be "triangulaires, tranchantes, pointues, et le plus souvent dentelées sur leurs bords." A number of species are included, the tautotype, and the one specially described being *Squalus carcharias L.* as figured by Belon ("la seule bonne"). This species "se reconnait à ses dents en triangle à peu pres isocèle, a côtes rectilignes et dentelées, arme terrible, qui en fait l'effroi des navigateurs"..."On a souvent donne ce nom (*Carcharias*) á d'autres espéces a dents tranchantes."

This can refer to nothing save *Squalus carcharias L.* Among the species merely listed by Cuvier, none belong to the genus called *Carcharias* by Gunther and most recent authors, (*Eulamia* Gill,) and by no process of reasoning can *Carcharias* Cuvier be regarded as other than *Carcharodon.*

Carcharodon (Andrew Smith) Müller & Henle next appears, based on *Carcharodon rondeleti*, which is *Carcharodon verus* (Blainville) Agassiz. This name *Carcharodon* has been in common use ever since as a designation for the Great White Shark.

Carcharias taurus Rafinesque is a species of *Odontaspis* Aggasiz. Lately, as the only species of *Carcharias* mentioned by name, in April 1810, it has been taken as type of *Carcharias.* But other species are mentioned a month later by Rafinesque, and indicated though not named in the original description which dealt only with new genera and species.

In recent papers (Garman, Jordan and others) we have the groups indicated as follows:

Carcharias Rafinesque (1810) type *taurus.*
Carcharhinus Blainsville (1816) type *commersonii*
Carcharias Cuvier (1817) preoccupied
Carcharodon Smith (1838) *carcharias.*

In justice and more fully according to rules we should have:

Carcharias Rafinesque, type *carcharias*

Eulamia Gill. (type "*Eulamia lamia* Gill"=*S. commersonii*, not *lamia* Rafinesque, which is *carcharias*.)

Odontaspis Agassiz (1836) type *taurus*.

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INTRODUCTION OF THE EUROPEAN BITTERLING (*Rhodeus*) IN NEW YORK AND OF THE RUDD (*Scardinius*) IN NEW JERSEY

Sometime last Spring, Dr. W. C. Kendall sent some small Cyprinoid fishes to Mr. J. T. Nichols at the American Museum, New York, with a query as to their identity. They had been taken in Saw-Mill Creek, Tarrytown, Westchester County, New York, but Dr. Kendall was unable to identify them with any American species. Mr. Nichols showed me the specimens, and we both recognized them as the common Bitterling (*Rhodeus amarus*) of Europe, often imported to New York City as an aquarium fish.

On leaving New York in September, I told Mr. Richard Dorn, president of *The Aquarium Society*, about the matter. At the next meeting of that organization, Mr. Dorn informed the members and in a month or so Mr. Joseph Lingg went to Tarrytown to search for the fish. He did not have the name of the stream, but after several unsuccessful attempts, he discovered the species in Saw-Mill Creek, whence came Dr. Kendall's material. Later Mr. W. G. Holbein visited the locality and obtained more of the fishes. When in New York recently, I examined some of Mr. Lingg's living specimens.

This first discovery of the Bitterling naturalized in America apparently solves the debated point regarding whether the fish will deposit its ova in any but European species of mussels, unless such mussels have

been introduced with the fish. Both Mr. Lingg and Mr. Holbein report Bitterling fairly abundant in the creek.

The European Rudd (*Scardinius erythrophthalmus*), since its discovery long ago in Central Park Lake, New York City, has been introduced from there into several places. So far none have been reported liberated in New Jersey. A number of years ago, Messrs. F. W. Hedden and W. J. Wright, freed some Rudd in the lake in Hudson County Park, Jersey City. The fishes have apparently thrived there, for specimens are often caught by urchins angling for *Fundulus*.

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NOTES ON MARINE FISHES FROM NEW YORK AND SOUTHERN NEW ENGLAND

The following data on local marine fishes which has come to the attention of the Department of Ichthyology of the American Museum of Natural History, seems worth placing on record.

Carcharhinus obscurus, Dusky Ground Shark. A ground shark apparently referable to this species is common at Woods Hole where it has been generally confused under the name *obscurus* with the New York ground shark *C. milberti*, also occurring there. This latter is the species which enters the bays of Long Island in summer, to give birth to its young. A third member of the genus, which could readily be confused with one or the other of these two, namely the southern ground shark, *C. commersonii*, occurs as a straggler both on Long Island shores and at Woods Hole. The three may be differentiated as follows. In *milberti* there is a ridge on the back; the snout is not blunt, rather pointed; the second dorsal fin is not noticeably smaller than the anal, and is placed about over it;

the length of the front of the first dorsal is contained less than twice in the pre-dorsal distance with the adult. In *C. obscurus* there is no ridge on the back; the snout is moderately blunt; the second dorsal fin smaller than the anal and placed over it; the length of front of first dorsal more than three times in the pre-dorsal distance. In *C. commersonii* there is no ridge on the back; the snout is very blunt; the second dorsal fin inserted distinctly in advance of anal; the length of front of first dorsal twice, or a little more, in the pre-dorsal distance. We are very familiar with *milberti* and *commerconii* but base our knowledge of *obscurus* largely on photographs.

Sarda velox, Striped Bonito. Off Block Island on August 15 and August 22, 1914, two specimens of a strange mackerel were taken, both from schools. The specimens were not preserved but a careful drawing of the fish from such data as was available, was made by Dr. Charles K. Stillman in 1920 and this figure published in the Bulletin of the American Game Protective Association, January 1921. The species is clearly related to and quite distinct from the common Bonito, *Sarda sarda*. In 1923, Meek and Hilderbrand (Field Museum, Zool., xv, p. 320, pl. 24) described and figured *Sarda velox* from the Panama City market. The Block Island fish may be provisionally referred to *velox*, from which it differs in no essential particular. Off-hand, it would seem rash to thus refer an Atlantic species concerning which so little is known, to one described from the Pacific. It should be borne in mind, however, that none of the several well marked forms of familiar tropical ocean mackerel but is common to both oceans. The common *Sarda* of the west coast of South America, whether or not it be recognizable as a full species and be known as *Sarda chilensis*, is at least very close to *Sarda sarda* of the Atlantic; also also *Germo allisoni*, described from Florida, either occurs in the Pacific or is exceedingly close to *Germomacropterus* of Japan.

Gempylus serpens, Snake Mackerel. A large specimen of this rare fish measuring 44 inches total length

was found cast up on the sea beach near the Napeague coast guard station, Long Island, by George H. Mulford, November 16, 1923, and sent to the American Museum. This appears to be the first definite record of the species for our stretch of coast.

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RECORDS OF FISHES IN PENNSYLVANIA 1924

Collections and field notes were made as follows: by Mr. R. M. Abbott and the writer in July at Hemlock Creek near Bloomsburg July 22, creek mile above Northumberland and Mahatango Creek; July 23, run 2 miles below York Springs, brook 12 miles north of Gettysburg, Big Conewago Creek 10 miles north of Gettysburg; July 24, tributary of the Brandywine east of Coatesville; Mr. J. Louis Troemner in the Tuscarora Creek at East Waterford in Juniata County on July 4; Mr. H. L. Mather and the writer in Rocky River, a tributary of Skippack Creek and the latter, near Eaglesville, Montgomery County, August 10.

1. Eel (*Muraena rostrata*). East Waterford, Eaglesville.

2. Common Sucker (*Catostomus commersonnii*). Northumberland, brook north of Gettysburg, Big Conewago Creek, Eaglesville.

3. Black Sucker (*Catostomus ingricans*). Few in Big Conewago Creek.

4. Fall Fish (*Semotilus bullaris*). Abundant in tributary of the Brandywine 3 miles north of West Chester, Chester County, in August (McCadden), also the next.

5. Creek Chub (*Semotilus atromaculatus*). Bloomsburg, Northumberland, Mohatango Creek, York Springs, brook north of Gettysburg, Big Conewago Creek, east of Coatesville, Eaglesville.

6. Roach (*Abramis crysolencas*). Eaglesville.

7. Silver-fin (*Notropis whipplii analostanus*). Bloomsburg, Northumberland, Mohatango Creek,

brook north of Gettysburg, Big Conewago Creek, Eaglesville.

8. Red-fin (*Notropis cornutus*). Bloomsburg, brook north of Gettysburg, Big Conewago Creek, Eaglesville.

9. Attractive Minnow (*Notropis photogenis amoenus*). Few at Bloomsburg.

10. Long-nosed Dace (*Rhinichthys cataractae*). Common at Northumberland.

11. Black-nosed Dace (*Rhinichthys atronasus*). Bear Creek near Wilkesbarre, Bloomsburg, Northumberland, Mahatango Creek, York Springs, run north of Gettysburg, Big Conewago Creek, east of Coatesville, Eaglesville.

12. Horny-head (*Hybopsis kentuckiensis*). Common in Big Conewago Creek.

13. Cut-lips (*Exoglossum maxillingua*). Common in creek above Northumberland.

14. Common Cat (*Ameiurus nebulosus*). Big Conewago Creek, East Wateford. Eaglesville.

15. Margined Cat (*Schilbeodes insignis*). Few in Big Conewago Creek.

16. Chain Pickerel (*Esox tridecemlineatus*). East Waterford and few in Big Conewago Creek.

17. Tessellated Darter (*Boleosuma nigrum olmstedi*). Brook north of Gettysburg, Big Conewago Creek and brook east of Coatesville.

18. Calico Bass (*Pomoxis sparoides*). One at East Waterford.

19. Red-bellied Sunfish (*Lepomis auritus*). One at East Waterford; common in Big Conewago Creek; few at Eaglesville.

20. Common Sunfish (*Pomotis gibbosus*). Few in the Big Conewago Creek and at Eaglesville.

21. Small-mouth Bass (*Micropterus dolomieu*). One at East Waterford; Eaglesville.

22. White Bass (*Roccus chrysops*). One at East Waterford.

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